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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,877	01/31/2000	Zhigang Fang	70239-00086	4072
58688 7590 12/02/2011 CONNOLLY BOVE LODGE & HUTZ LLP P.O. BOX 2207 WILMINGTON, DE 19899			EXAMINER YANG, JIE	
			ART UNIT 1733	PAPER NUMBER
			MAIL DATE 12/02/2011	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

09/494,877

Applicant(s)

FANG ET AL.

Examiner

JIE YANG

Art Unit

1733

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1, 7, 11-14, 19-21, 33, 34, 37, 41 and 42 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1, 7, 11-14, 19-21, 33, 34, 37, 41 and 42 is/are rejected.
- 8) ☒ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/C.3)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claims 1, 14, and 33 have been amended; claims 2-6, 8-10, 15-18, 22-32, 35-36, 38-40, and 43-47 have been cancelled; Claims 1, 7, 11-14, 19-21, 33, 34, 37, 41, and 42 remain for examination, wherein claims 1, 14, and 33 are independent claims.

Status of the Previous Claims

Previous rejection of claims 1, 14, 25, 33, and 43 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in view of the remarks filed on 11/10/2011.

Previous objection of claims 1 and 14 because of the informalities is withdrawn in view of the remarks filed on 11/10/2011.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7, 11, 12, 14, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sue et al (US 2006/0222853, thereafter, PG'853) in view of JP 05-156301 (From abstract and machine translation, thereafter JP'301) and Nakamura et al (US 5,934,542, thereafter US'542).

PG'853 in view of JP'301 and US'542 is applied to the claims 1, 7, 11, 12, 14, and 19-21 for the same reason as stated in the previous rejections dated 5/10/2011.

Regarding the amended limitation in the instant claims 1 and 14, PG'853 teaches a composite construction having a core of WC and Co powder surrounded by a shell of cobalt metal (Paragraph [0032] of PG'853) and the Co powder can be replaced with alloys of Ni and Fe (paragraph [0009] of PG'853), which reads on the WC as first phase and iron-based binder comprising Co, Ni, C, and Mn as second phase as recited in the instant claims.

Claims 13, 33, 34, 37, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sue et al (US 2006/0222853, thereafter, PG'853) in view of JP'301 and US'542 and further in view of JP 10-284547 (Abstract, figure, and table, thereafter JP'547).

PG'853 In view of JP'301, US'542 and JP'547 is applied to the claims 13, 33, 34, 37, 41, and 42 for the same reason as stated in the previous rejections dated 5/10/2011.

Regarding the amended limitation in the instant claim 33, PG'853 teaches a composite construction having a core of WC and Co powder surrounded by a shell of cobalt metal (Paragraph

[0032] of PG'853) and the Co powder can be replaced with alloys of Ni and Fe (paragraph [0009] of PG'853), which reads on the WC as the first phase and the second phase: ductile binder alloy of Co, Ni, Fe, C, and Mn as recited in the instant claim.

Response to Arguments

Applicant's arguments filed on 11/10/2011 with respect to claims 1, 7, 11-14, 19-21, 33, 34, 37, 41, and 42 have been fully considered but they are not persuasive. Regarding the arguments related to the amended feature in the instant claims, the Examiner's position has been stated as above.

In the remarks filed on 11/10/2011, the Applicant argued:

1) Sue et al (PG'853) fails to disclose that the ductile metal can be an alloy as Applicants' claimed binder alloy comprising Fe, Co, Ni, C, and Mn; Sue et al (PG'853) simply fails to disclose that the ductile metal used with WC to form two of its three phases comprises blend where including C and Mn; Sue et al (PG'853) fails to disclose 10 to 30wt% of the binder alloy based on the total weight of the cement material; and Sue et al (PG'853) fails to disclose that binder alloy comprising 10 to 30wt% Co based on the total weight of the binder alloy.

2) JP'301 does not expressly disclose the use of WC and the Super Invar of JP'310 comprises only 5wt% Co. There is no teaching for partially replace Co by Super Invar alloy.

3) Nakamura et al (US'542) does not disclose that the shank material consist of only two material phases.

4) None of the combined references disclose or remotely suggest the claim feature of the binder alloy comprising 10 to 30wt%Co as present in each of Applicants' independent claims.

In response,

Regarding the Applicants' arguments 1)-4), the Applicant's arguments are against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In the instant case, Sue et al (PG'853) in view of JP'301 and Nakamura et al (US'542) is applied to the claims 1, 7, 11, 12, 14, and 19-21 and JP'547 is further applied to claims 13, 33, 34, 37, 41, and 42. The detail discussions and the motivation for combining Sue et al (PG'853), JP'301, Nakamura et al (US'542), and JP'547 can refer to the discussion above and the previous office action marked 5/10/2011.

Still regarding the arguments 1)-3), the Examiner disagrees with the Applicants' arguments because a) Sue et al (PG'853) clearly teaches the Co powder can be replaced with alloys of Ni and Fe (paragraph [0009] of PG'853); b) Sue et al (PG'853) does not indicate that it can not be partially replacement for Ni and/or Fe to Co; c) JP'301 teaches mixing Super INVAR powder and a ceramic powder in 75:25 to 25:75 mixture and the mixture is sintered; and d) US'542 teaches applying Kovar alloy as

binder alloy and US'542 teaches Kovar alloy has a composition of 64wt%Fe; 29wt%Ni; 17wt%Co; and at most 0.5wt%C and Mn. In contrast, the Examiner notes that there is no any specific content limitation for elements C, Mn, and Ni in the instant independent claims. Because both JP'301 and US'542 teach binder alloy comprising Co to apply with the cermets material, therefore, it is the Examiner's position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to partially replace Co binder of PG'853 with the Super INVAR binder alloy of JP'301 or to apply Kovar alloy as binder alloy as demonstrated by US'542 in the cermets material of PG'853 in view of JP'301.

Still regarding the argument 4), US'542 teaches applying Kovar alloy as binder alloy and US'542 teaches Kovar alloy has a composition of 64wt%Fe; 29wt%Ni; 17wt%Co; and at most 0.5wt%C and Mn, which reads on the binder alloy comprising 10 to 30wt%Co as present in each of Applicants' independent claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jie Yang/
Patent Examiner, Art Unit 1733